

REMARKS

In accordance with the foregoing, claims 1, 6, and 8-10 are amended. New claim 13 is presented. Claims 1-13 are pending and under consideration. No new matter is presented, and accordingly approval and entry of the foregoing amended and new claims are respectfully requested.

Claim Amendments

Claim 1 is amended herein to recite an inspection device including "a defect registration determinator . . . wherein the defect registration determinator determines that the detected defect is a non-registration defect if the detected defect is smaller than the inspection sensitivities allocated to the sensitivity class codes." Claim 6 is similarly amended.

Support for the amendments is found, for example, in page 21, line 16 to page 22, line 9 of the specification. Claims 8-10 are amended to correspond to parent claim 1 as amended herein.

No new matter is presented, and accordingly approval and entry of the foregoing amended claims are respectfully requested.

Item 4: Rejection of claims 1-2, 5-7, 10 under 35 U.S.C. 103(a) as being unpatentable over Shishido et al. (U.S.P. 6,865,288) in view of Chen et al. (U.S.P. 6,721,695)

Item 6: Rejection of claims 11-12 under 35 U.S.C. §103(a) as being unpatentable over Shishido in view of Chen and Usui et al. (U.S.P. 6,617,083)

In items 4 and 6 of the Office Action, the Examiner rejects claims 1-2, 5-7, and 10-12 under 35 U.S.C. §103(a) as being unpatentable over Shishido in view of combinations of Chen and Usui.

The rejection is traversed. Applicants submit that features recited by each of the independent claims are not taught by the art relied on by the Examiner, either alone or in an *arguendo* combination.

Claim 1 recites an inspection device that identifies defects including:

(a) "a reference data generator that generates reference data that is based on design data and includes sensitivity class codes that are used to differentiate designated pattern functions by inspection sensitivity (emphasis added);" and

(b) "an inspection sensitivity setter that allocates desired inspection sensitivities for said sensitivity class codes (emphasis added);" and

(c) "an image acquiring unit . . . ;" and

(d) "a comparator that compares said data to be inspected with said reference data and detects a defect;" and

- (e) "a reference data extractor. . . ;" and
- (f) "a defect registration determinator that refers to said sensitivity class codes in said region and determines whether to register said defect (emphasis added);" and
- (g) "a defect memory . . . ," and
- (h) "wherein the defect registration determinator determines the detected defect as a non-registration defect if the detected defect is smaller than the inspection sensitivities allocated to the sensitivity class codes (emphasis added)." Claim 6 has a similar recitation.

That is, according to an embodiment of the invention, a determination is made as to a size of the defect and if the size is smaller than inspection sensitivities allocated to the sensitivity class codes, the defect is determined to be a non-registration defect.

Thus, according to an embodiment of the present invention, for example, the defects that do not affect performance based on allocated inspection sensitivity are not registered, thus increasing the efficiency of the identification of defects, and enabling a quicker turn-around from inspection to correction.

The Office Action concedes that Shishido does not teach using sensitivity codes. (Action at page 3). However, the Examiner asserts It would have been obvious:

to include in Shishido a sensitivity class setting means as taught by Chen . . . because it makes for a more robust system that will reduce the amount of false detects.

(Action at page 4).

By contrast Shishido teaches:

an object of the present invention is to . . . provide a pattern inspection method and apparatus using image comparison, in which the chance of detection error of a normal fine pattern is reduced by reducing the high-precision positioning failure in subpixels of an object having various fine patterns existing therein, while at the same time making accurate inspection possible without overlooking the fine detects occurred in the fine patterns.

(col. 1, lines 61- col. 2, line 2)

That is, Shishido teaches comparing detection image data with reference image data to detect all defects including small defects occurring in a fine pattern.

Chen does not teach any using a sensitivity in examining if a detected defect is smaller than a inspection sensitivities allocated to the sensitivity class codes. By contrast, Chen merely teaches:

Sensitivity modules 14 are conventional modules for evaluating sensitivity of an inspection tool in detecting programmed defects.

(col. 4, lines 8-10)

That is, Chen teaches determining the sensitivity capability of a tool, not using the sensitivity in determining the size of a defect.

Usui merely teaches a correction may be rule-based or simulation based. (Col. 5, lines 65-67).

Thus, Applicants submit that *prima facie* obviousness is not established since features recited by each of the independent claims are not taught by even an *arguendo* combination of Shishido, Chen, and Usui.

Further, Applicants submit there is no reasoning to modify Shishido in a manner as the Examiner asserts. Applicants respectfully point out in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 127 S Ct 1727, 167 LEd2d 705 (U.S. 2007), the U.S. Supreme Court held that in determining obviousness, one "must ask whether the improvement is more than the predictable use of prior art elements according to their established functions" slip op. 13, 82 USPQ2d at 1396. Furthermore, it is necessary "to determine whether there was an apparent reason to combine the known elements in the fashion claimed" slip op. 14, 82 USPQ2d at 1396.

The Supreme Court further affirmed *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006), stating: "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." As relied upon in the *KSR* decision, any underlying obvious to try rationale still requires evidence in the record of the same.

Summary

Since *prima facie* obviousness is not established, the rejection should be withdrawn and claims 1-2, 5-7, and 10-12 allowed.

Item 5: Rejection of claims 3-4 and 8-9 under 35 U.S.C. §103(a) as being unpatentable over Shishido in view of Chen and further Kikuchi et al. (U.S.P. 6,507,944)

In item 5 of the Office Action, the Examiner rejects claims 3-4 and 8-9 under 35 U.S.C. §103(a) as being unpatentable over Shishido in view of Chen and Kikuchi. The rejection is traversed.

Dependent claim 3 recites a device "wherein said defect registration determinator creates a defect determination range by shifting outwardly an outline of a region associated with each of said pattern functions, and based on overlap of said defect and said defect determination range, determines whether to register said defect." Dependent claim 4 recites a device "wherein said defect registration determinator detects which of said pattern functions said defect is associated with based on said overlap, and based on said inspection sensitivity

that has been allocated to said detected pattern function, determines whether to register said defect." Claims 8 and 9 recite similar features.

The Action concedes that an *arugendo* combination of Shishido and Chen does not teach "registering defects based on the overlap between an outline and the defect." (Action at page 5). The Examiner asserts that Kikuchi teaches:

creating-a grid size based on rules . . . and checking for defects by looking for the overlap between the area and the grid . . . It would have been obvious. . . to include in Shishido and Chen an overlap defect registration means as taught by Kikuchi. . . for a more robust system that can register defects by checking for the width of zones in different grids. Regarding claim 4, Kikuchi discloses using a set of rules to determine the defect registration.

(Action at page 5).

Applicants submit that none of the art, alone or in *arguendo* combination teach a range by "shifting outwardly an outline of a region associated with each of said pattern functions." Further, the Examiner has not cited art teaching the same.

In addition, Applicants submit there is no motivation to modify Shishido and Chen for determination of "detects which of said pattern functions said defect is associated with based on said overlap, and based on said inspection sensitivity that has been allocated to said detected pattern function," as recited by claim 4, for example. In addition, the Examiner has not provided a motivation for such a feature.

Summary

Since *prima facie* obviousness is not established , the rejection should be withdrawn and claims 3-4 and 8-9 allowed.

New Claim

New claim 13 is presented to recite features in a different manner. Claim 13 recites an inspection method including "generating sensitivity class codes to differentiate designated pattern functions by inspection sensitivity; allocating desired inspection sensitivities for said sensitivity class codes; comparing data to be inspected with reference data and detecting a defect; and determining whether to register said defect by referencing the sensitivity class codes of the pattern functions, wherein the detected defect is determined to be a non-registration defect if the detected defect is smaller than the inspection sensitivities allocated to the sensitivity class codes."

Support for claim 13 is found, for example, in page 21, line 16 to page 22, line 9 of the specification. No new matter is presented, and accordingly approval and entry are respectfully requested.

These and other features of claim 13 patentably distinguish over the art currently relied on by the Examiner.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: September 4, 2007

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